

CONSERVATION BREAST TREATMENT: A VIABLE OPTION LOCALLY

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SYNOPSIS

Conservation treatment in carcinoma of the breast is a viable option in the West but is still an uncommon practice locally. Many reasons have been put forth, including the late stage of the tumour we see and the small breast size. This paper presents 25 cases treated by lumpectomy and irradiation with satisfactory cosmetic results, although the follow-up period is short. The introduction of this technique may encourage women to seek treatment earlier, without the fear of losing their breasts.

Key words: conservation breast treatment; cosmetic results.

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INTRODUCTION

It is particularly devastating for a woman to lose her breast and, in this day and age of chemotherapy, to lose her hair as well. The aim of conservation treatment in breast cancer is to ensure a cosmetically presentable breast without affecting survival. Of course, if conservation breast treatment ensures a better survival, it would certainly be the treatment of choice. Perhaps survival is improved with the enhancement of the patient's well-being because there is no loss of body image.

One may argue that any form of breast conservation is better than a mastectomy. However, this is not so because a badly treated, contorted and fibrotic breast is worse than none at all. So, it is a specialised technique for all doctors involved in its administration. The surgical technique of a well-placed incision, a tumour removed with adequate margins and a good axillary clearance can be an even more demanding procedure than a mastectomy. The pathologist has to be involved in giving the surgeon and radiotherapist the detailed results of the specimen including the margins, lymphatic and venous invasion, and the presence of an extensive intraductal component. Finally, the radiotherapy technique should be meticulous with every effort made to ensure minimal side effects and maximum cosmetic results. A treatment that is both troublesome and challenging.

The good results of conservation treatment can be found in many articles today (1-8). Large randomised trials (5-8) have proven its value and many women have benefited from the procedure. The argument that all Asian women have smaller breasts and thus make the procedure difficult lies in the mistaken belief that all Caucasian women have large breasts. Breast size and tumour size are important considerations but they are relative terms. The larger the breast, the larger the size of the tumour that can be removed which can result in good cosmesis. Today, a lumpectomy is an adequate procedure. Thus, smaller breasts can also be treated by conservation techniques (5).

The aim of this article is to present the fact that here in Singapore, breast conservation treatment can be done and has been done. Although the number of patients is small, it forms the embryo study which can, in time, blossom to benefit many more women.

MATERIALS AND METHOD

Twenty five patients who were treated by lumpectomy or segmental mastectomy between 1985 to 1988 were entered into this study. Treatment with irradiation began after removal of the stitches and this was generally between one and two weeks after surgery. The patients were treated with megavoltage equipment using either the Cobalt 60 unit or the 10 MeV Linear Accelerator. The Cobalt unit was preferred as energies more than 6 MeV tended to give too much skin sparing. The treatment dose to the breast ranged from 4500 cGy to 5000 cGy treating daily with 200 cGy fractions. Nineteen (76%) were treated to 5000 cGy.

The internal mammary nodes were treated either with the breast field or with a separate field. The supra-clavicular and axillary nodal regions were also treated to a total tumour dose of 4500 cGy using 200 cGy fractions daily.

Boosting of the primary site was carried out using the electron beam and the energy used depended on the size of the breast. Generally, 1000 cGy to 1500 cGy were given using 200 to 300 cGy fractions daily.

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RESULTS

Table 1 shows the number of patients who had axillary clearance or axillary sampling. Only half of them had this procedure. Clinically clear axillae have up to 30% positive nodes when a surgical clearance was carried out (9). We would like to know the status of the axillae in order to prognosticate as well as to decide on the adjuvant treatment.

Table 1.
AXILLARY CLEARANCE/SAMPLING

	NO.	%
CLEARANCE	12	48
NO CLEARANCE	13	52
TOTAL	25	100

Fig. 1 shows the number of patients put on adjuvant treatment. Ten (40%) were put on hormonal treatment using tamoxifen. This was used for patients who were postmenopausal (10), in most cases, regardless of the nodal status. Four patients had chemotherapy because of the presence of nodes in the axillae (10), and they were premenopausal.

Figure 1 PATIENTS ON ADJUVANT TREATMENT

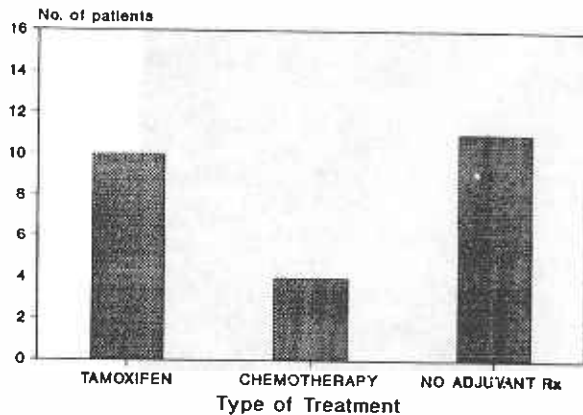


Fig. 2 shows the source of referral of patients for conservation breast treatment. Nine (36%) came from the Government Hospitals, while only three patients were from the University Hospital. The majority came from the private sector.

Figure 2 SOURCE OF REFERRAL

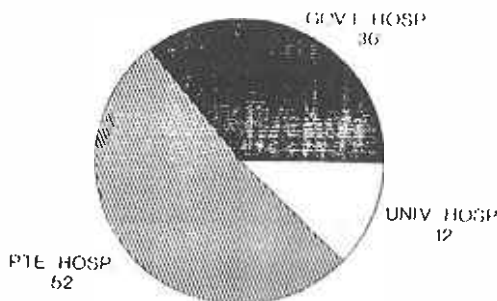


Table 2 shows the reasons for conservation treatment against the age distribution. Seven (28%) were referred because they were infirmed or there were overwhelming medical reasons against the use of anaesthesia and surgery. Eighteen patients (72%) were sent because they refused to have a mastectomy. Only thirteen patients (52%) were below 50 years of age. In fact, 40% of the patients were above 60 years of age. As expected, almost all the patients below 50 opted to have conservation treatment on their own accord. In the older age groups, those that refused to have a mastectomy were patients who were afraid of a major surgical procedure.

Table 2.
REASONS FOR CONSERVATION BY AGE DISTRIBUTION

AGE	MED. REASON	REFUSAL	TOTAL
<30 YRS	0	0	0 (0%)
30-39 YRS	1	2	3 (12%)
40-49 YRS	1	10	11 (44%)
50-59 YRS	0	1	1 (4%)
60-69 YRS	3	3	6 (24%)
70-79 YRS	2	1	3 (12%)
80-89 YRS	0	1	1 (4%)
ALL AGES	7	18	25 (100%)

Table 3 shows the distribution by clinical stage. Since not all patients had an axillary clearance, the absence of nodes was a clinical rather than the usual pathological staging. Twelve (48%) patients had tumours in the T1 NO stage, eleven (44%) T2 NO and two (8%) had a T2 N1 stage. Almost equal distribution of left and right breast involvement were seen with one case of bilateral breast carcinoma.

Table 3
DISTRIBUTION OF PATIENTS BY CLINICAL STAGE

STAGE	NO.	%
T1 NO	12	48
T2 NO	11	44
T1 N1	0	0
T2 N1	2	8
ALL STAGES	25	100

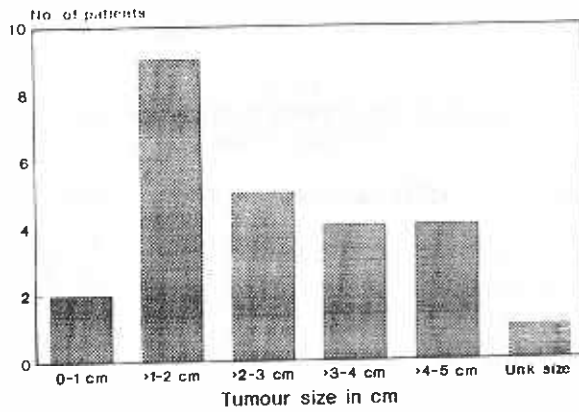
Table 4 shows the site of tumours. There were overlapping areas primarily because the patients were not seen pre-operatively. Nevertheless, the aim here was to place the tumours either in the inner or outer half of the breast as this affected the need to treat the internal mammary nodes. Twelve (48%) of the tumours were in the outer half and there were four central tumours.

Table 4.
SITE OF BREAST TUMOUR

SITE	NO.	%
INNER	6	24
OUTER	12	48
UPPER	3	12
LOWER	0	0
CENTRAL	4	16
ALL SITES	25	100

The tumours were classified according to the size primarily on the pathological specimen. Eleven (44%) of the tumours were 2 cm or less, i.e. T1 lesions. One was sent as a T1 lesion but no exact size was recorded. Most of the patients (56%) had tumours that were more than 2 cm in size and four patients had tumours more than 4 cm in size (Fig 3).

Figure 3 TUMOUR SIZE



The type of surgery was classified as either a lumpectomy or a segmental mastectomy. These terms are used interchangeably in most studies (5, 11). All the patients had either one of these two procedures and none had a quadrantectomy.

Most of the patients had an infiltrative ductal carcinoma (84%). One patient was classified as a colloid carcinoma and the other a medullary carcinoma. There was a case of intraductal tumour, and a case of lobular carcinoma.

The median follow up period was 14 months. Eight patients have been followed up for more than 2 years and have no recurrences. All the patients are currently on follow up and are alive without evidence of disease or recurrences.

The cosmetic results are satisfactory in all the patients except one who had a wide excision resulting in the loss of substantial amounts of breast tissue. Photographs 1 and 2 show one of the patients who had lumpectomy and irradiation taken 6 months after treatment. The breasts move symmetrically when the arms are abducted, showing no fibrosis. The skin shows no radiation changes at present with the use of megavoltage equipment.

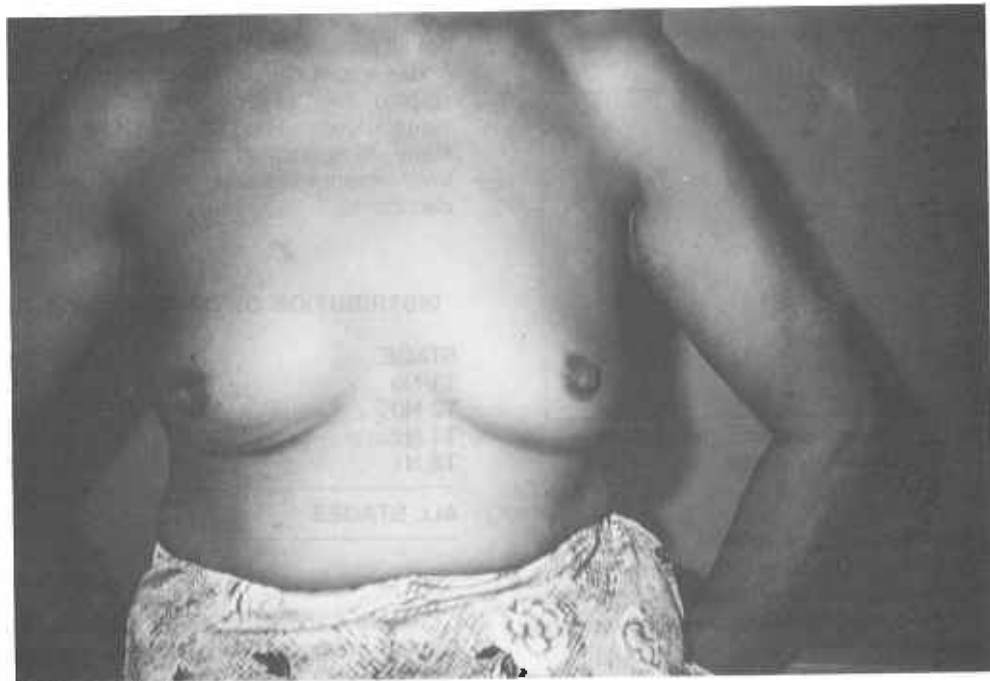


Figure 4

Patient with lumpectomy of the upper outer quadrant of the right breast, followed by irradiation, 6 months after treatment.

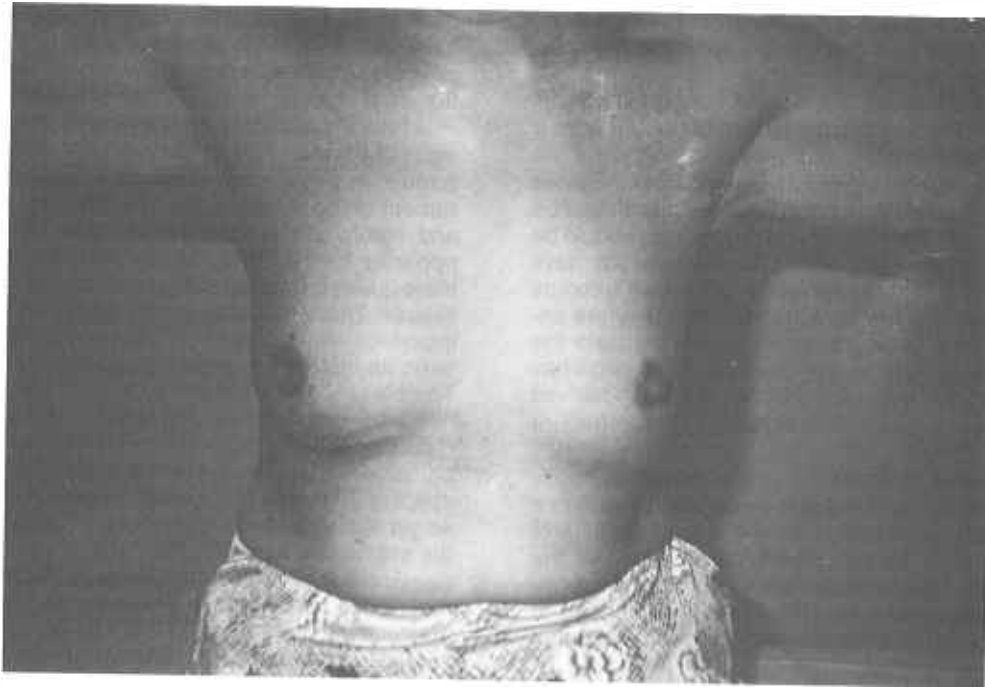


Figure 5

The same patient, with the arms abducted, showing no fibrosis.

The skin shows minimal radiation changes.

DISCUSSION

Conservation breast treatment began with a lot of scepticism in the West and it would be naive to expect acceptance here immediately. It is not a procedure to be done without prior discussion and cooperation among the doctors and with the patients.

Selection of patients in our study was not done optimally. We would like to have patients who have had an adequate margin of clearance, at least 1 cm around the tumour. The axilla should either be sampled or cleared (5) and the extent of surgery made known so that the radiotherapist can decide on whether to treat the axilla. The axilla is treated if only sampling has been done, the nodes are found to be extracapsular, more than half of the nodes examined are involved or there are remnant nodes (12). The presence or absence of nodes would then help in deciding further adjuvant treatment. A separate incision should be used to determine the presence of nodes in the axilla or to clear the nodes (11, 12).

The pathologist has to determine the amount of intraductal component in the main tumour mass. In the JCRT study, the presence of more than 25% of the main tumour mass containing an intraductal component resulted in a higher rate of recurrence. This group had a 23% actuarial risk of breast recurrence at 5 years, compared to only 2% for other patients (12, 13, 14).

Boosting of the radiation dose to the site of excision in our patients was carried out using the electron beam (11, 15). The JCRT (16) studies used iridium implant or electron boosting, while the NSABP (5) study did not use boosting. It was felt that boosting was not required if adequate excision had been done. On the other hand, since boosting was to a very small field with little complications when using the electron beam, it was thought that all patients could easily have the additional treatment. This is particularly necessary when we are unsure of the clearance, or the clearance is inadequate.

The total dose to be used is 4500 to 5000 cGy to the whole breast. Conventional fractionation should be used. This would ensure the best cosmetic results coupled with the best tumour kill. Larger fractions or higher doses may result in unnecessary fibrosis. Megavoltage equipment, preferably the Cobalt or 4 to 6 MeV Linear Accelerator, should be used to ensure some skin sparing (12).

It is interesting to note that the largest number of patients came from the private sector. One would have expected the institutional practice to take the lead. Perhaps, too, the educated patients tended to want the procedure. In this group of patients, a large number was in the older age group and had opted for the procedure because of the fear of having a major surgery and for medical reasons.

Table 3 and figure 3, showing clinical stage and size of tumour, respectively, indicate a rather mixed group of patients. The Milan trial (6) used tumours 2 cm or less and they performed a quadrantectomy. This was felt to be too extensive a procedure. The NSABP trial (5) used tumours 4 cm or less and only a lumpectomy was carried out. The terms lumpectomy or segmental mastectomy were used interchangeably in the NSABP trial. In principle, the larger the breast the larger the tumour that can be removed (12). In fact, one can even argue that beyond a certain size, it will make no difference to the patient's prognosis what the local procedure is. However, the cosmetic results may not be acceptable then.

Left and right sided breast tumours are important if a separate internal mammary field is used. The left sided tumour would mean that more of the heart would be irradiated and result in serious consequences many years later. It is felt that it is not necessary to treat the internal mammary nodes with a separate field because one rarely encounters problems with nodes in this area. Furthermore, at the present moment, no studies have shown a

survival advantage (5, 6, 12). On the other hand, treating without the internal mammary field may result in excessive lung irradiation.

Table 4 (which shows the sites of tumour) illustrates the difficulty in deciding the actual site of tumour from a surgical scar. Patients are best seen before surgery or the surgeon has to map out clearly the site of tumour. This is important for the purpose of boosting. The scar should be placed directly over the tumour and the incision should be circumareolar rather than radial. Radial incisions have been advocated in a study for lower half breast tumours (5, 12). As for central tumours, it is felt that they are unsuitable for breast conservation treatment because the areola may have to be removed. However, if the areola has to be removed, the breast contour can still be preserved quite adequately without compromising that aspect of cosmesis.

The main histological type is the infiltrative ductal carcinoma. The infiltrative lobular carcinoma can also be treated by breast conservation but there is a possibility of multicentricity both in the breast conserved and the opposite breast. The management of intraductal carcinoma is a controversial topic (17). However, it tended to have a good prognosis regardless of the procedure of treatment.

CONCLUSION

The early scepticism shown for breast conservation in treating breast cancer is not unfounded because the principle of extensive breast surgery was based on a stepwise progression of the disease. Geoffrey Keynes, a surgeon at St. Bartholomew's Hospital in London, began to treat patients with operable carcinoma of the breast in this conservative manner as early as 1924 (18). Another early advocate of this treatment was Vera Peters, who began

treating T1 and T2 breast tumours conservatively from 1939, at the Princess Margaret Hospital (9, 10). Matched paired analysis with radical surgery of 184 patients after 30 years showed no significant difference in survival.

Another aspect of controversy is the possibility of a second tumour. This could manifest itself as a second tumour in the marrow such as a leukaemia, a second tumour in the tissues of the chest wall such as a sarcoma and, finally, as a second primary in the same breast or the opposite breast. With better radiotherapy equipment, there is less unwanted scatter radiation to the surrounding tissues. There has been no reports of an increase in the incidence of acute myeloid leukaemia, neither has there been an increase in sarcomas of the chest wall (20, 21). The presence of a second tumour in the same breast is difficult to determine but the NSABP trial (5) found that the recurrences were primarily in the adjacent areas of the primary tumour. The presence of a second tumour in the opposite breast is 5 to 10% in surgically treated patients. As yet there has been no increase in a second tumour in the opposite breast (22, 23).

Another area of controversy is the event of a local recurrence in the breast. This can easily be treated by a mastectomy as is done in the NSABP protocol, without survival impairment (5). However, there are now some patients treated by further conservative breast treatment but the follow up of such treated patients is short (24, 25).

It is hoped that the ability to provide conservation breast treatment will encourage women to seek treatment at an earlier stage. Perhaps too, with breast screening procedures more widely used, there will be more patients with early lesions suitable for this procedure.

A new therapeutic approach may be expected to be received with great caution. However, it is the far sightedness of the many surgeons, radiotherapists and women who attempted the method that has now come to benefit thousands of other women afflicted with breast cancer.

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